

REMARKS

This Amendment is submitted in response to the Office Action dated October 23, 2006. In the Office Action, the Patent Office rejected Claims 56-64 under 35 U.S.C. §112, first paragraph, as being indefinite for failing to point out and distinctly claim the subject matter which Applicant regards as the invention.

Furthermore, the Patent Office rejected Claims 1, 2, 8, 21-23, 27-29, 47, 49, 52-55 and 112-114 under 35 U.S.C. §102(b) as being anticipated by U.S. Patent No. 4,898,535 to *Bergersen* (hereinafter "the '535 patent"); rejected Claims 1, 2, 4, 21, 24-26, 29 and 112-115 under 35 U.S.C. §102(b) as being anticipated by U.S. Patent No. 5,876,199 to *Bergersen* (hereinafter "the '199 patent"); and rejected Claims 65-69, 71 and 74 under 35 U.S.C. §102(b) as being anticipated by U.S. Patent No. 5,536,168 to *Bourke*.

Moreover, the Patent Office rejected Claim 3 under 35 U.S.C. §103(a) as being unpatentable over the '535 patent in view of U.S. Patent No. 4,139,944 to *Bergersen* (hereinafter "the '944 patent"); rejected Claims 5 and 6 under 35 U.S.C. §103(a) as being unpatentable over the '535 patent in view of U.S. Patent No. 4,073,061 to *Bergersen* (hereinafter "the '061 patent"); rejected Claim 7 under 35 U.S.C. §103(a) as being unpatentable over the '199 patent or the '535 patent in view of U.S. Patent No. 5,328,362 to *Watson*; rejected Claims 9-11, 50 and 51 under 35 U.S.C. §103(a) as being unpatentable over the '535 patent in view of the '199 patent; and rejected Claims 12 and 116 under 35 U.S.C. §103(a) as being

unpatentable over the '535 patent in view of U.S. Patent No. 5,536,168 to *Bourke*.

Furthermore, the Patent Office rejected Claims 14, 16, 17, 19, 20, 56-62, 64, 75 and 77 under 35 U.S.C. §103(a) as being unpatentable over the '535 patent in view of U.S. Patent No. 5,779,470 to *Kussick*; rejected Claims 14, 16, 17, 19, 20, 56-62, 64, 75 and 77 under 35 U.S.C. §103(a) as being unpatentable over the '199 patent in view of U.S. Patent No. 4,784,605 to *Bergersen* (hereinafter "the '605 patent"); and rejected Claims 30, 37, 38, 103-105 and 109 under 35 U.S.C. §103(a) as being unpatentable over the '535 patent in view of the '605 patent.

Moreover, the Patent Office rejected Claims 31, 32, 35 and 36 under 35 U.S.C. §103(a) as being unpatentable over the '535 patent in view of the '605 patent and further in view of *Bourke*; rejected Claim 63 under 35 U.S.C. §103(a) as being unpatentable over the '535 patent in view of *Kussick* and further in view of the '199 patent; rejected Claim 70 under 35 U.S.C. §103(a) as being unpatentable over *Bourke* in view of the '199 patent; rejected Claim 72 under 35 U.S.C. §103(a) as being unpatentable over *Bourke* in view of U.S. Patent No. 3,742,075 to *Kesling*; rejected Claims 92-94, 97, 99, 101 and 102 under 35 U.S.C. §103(a) as being unpatentable over the '535 patent in view of *Kesling*; rejected Claim 95 under 35 U.S.C. §103(a) as being unpatentable over the '535 patent in view of *Kesling* and further in view of the '199 patent; rejected Claim 96 under 35 U.S.C. §103(a) as being unpatentable over the '535 patent in view

of *Kesling* and further in view of *Bourke*; rejected Claims 98 and 100 under 35 U.S.C. §103(a) as being unpatentable over the '535 patent in view of *Kesling* and further in view of U.S. Patent No. 4,330,272 to *Bergersen* (hereinafter "the '272 patent"); and rejected Claim 107 under 35 U.S.C. §103(a) as being unpatentable over the '535 patent in view of the '605 patent and further in view of the '061 patent.

Applicant notes with appreciation that the Patent Office indicated that Claim 13 would be allowable if rewritten in independent form. Accordingly, Applicant added Claim 123 which incorporates the limitations of Claim 8 into Claim 13.

By the present Amendment, Applicant amended Claims 1, 2, 5, 6, 8, 10, 12, 14, 17, 19, 21, 26, 29, 30, 33-36, 39, 40, 47, 48, 52-56, 63-65, 70, 72, 74, 92, 94-101, 103, 106, 107, 112 and 114-116 and added new Claim 123. Applicant submits that the amendments to the claims overcome the objections and rejections by the Patent Office and place the application in condition for allowance. Notice to that effect is respectfully requested.

With respect to the rejection of Claims 56-64 under 35 U.S.C. §112, first paragraph, Applicant respectfully submits that the rejection has been overcome by the amendment to independent Claim 56. More specifically, in Claim 56, Applicant has amended "the cavity within the upper base" to "a cavity within the upper base" and amended "the cavity within the lower base" to "a cavity within the lower base" thus providing antecedent basis. Claims 57-64 depend from Claim 56.

With respect to the rejection of Claims 1, 2, 8, 21-23, 27-29, 47, 49, 52-55 and 112-114 under 35 U.S.C. §102(b) as being anticipated by the '535 patent, Applicant submits that the rejection has been overcome in view of the foregoing amendments to the claims and the remarks that follow.

Independent Claim 1, as amended, requires a dental appliance having a hinge that connects the top portion to the bottom portion wherein the hinge has an upper plate that inserts into a top aperture in the top portion wherein the hinge has a lower plate that inserts into a bottom aperture in the bottom portion wherein the hinge may be removed and re-inserted into the upper aperture and the lower aperture to reversibly detach and re-attach the upper base to the lower base.

Independent Claim 8, as amended, requires a dental appliance having a hinge connecting the upper base and the lower base wherein the hinge is sized to insert into slots in the upper base and the lower base wherein a front section of the upper base separates from a front section of the lower base via the hinge wherein the hinge may be removed from the slots to allow the upper base to separate in its entirety from the lower base.

Independent Claim 21, as amended, requires a dental appliance having a concaved portion which is formed on the upper base wherein the concave portion is a depression in the upper base wherein the concave portion is shaped like the tongue and moves the tongue of the user outward with respect to the lower arch of the user wherein

the upper base widens the upper arch of the user. Further, amended Claim 21 requires a dental appliance having a hinge attaching the upper base to the lower base wherein an upper hinge plate inserts into an upper slot in the upper base, a lower hinge plate inserts into a lower slot in the lower plate and a pivot of the hinge that connects the upper plate to the lower plate and resides outside of the exterior surface of the upper base and the exterior surface of the lower base.

Independent Claim 47, as amended, requires a dental appliance having holes formed in an upper portion and a lower portion of the hinge wherein the upper base and the lower base have slots with projections wherein at least one projection within the slot of the upper base passes through at least one hole in the upper portion of the hinge wherein at least one projection within the slot of the lower base passes through at least one hole in the lower portion of the hinge.

Independent Claim 112, as amended, requires a dental appliance having a cavity wherein the cavity is a depression in the lower base shaped and sized to like the tongue wherein the cavity moves the tongue outwardly with respect to the lower base. Further, amended Claim 112 requires a dental appliance having a hinge connecting the upper base and the lower base and removably attached to the upper base and the lower base so that removing the hinge from an upper slot in the upper base and a lower slot in the lower base allows the upper base to separate in its entirety from the lower base.

In contrast, the '535 patent merely teaches a removable orthodontic appliance with a means for retaining the appliance within the user's mouth. The appliance has an upper tooth receiving trough and lower tooth receiving trough which are separated at an anterior end and connect at a posterior end by a resilient hinge which biases the appliance into an open position with the two trough anterior ends urged apart. Such an appliance can be manufactured by slitting the appliance after molding, before it has cooled, to thermoset the hinge in an open position or by molding the appliance in an open position. The hinge is integrally molded into the appliance (the '535 patent, column 3, lines 29 to 36), preventing removal of the hinge from the device and separation of the upper trough from the lower trough.

Nowhere does the '535 patent disclose a dental appliance having a hinge that connects the top portion to the bottom portion wherein the hinge has an upper plate that inserts into a top aperture in the top portion wherein the hinge has a lower plate that inserts into a bottom aperture in the bottom portion wherein the hinge may be removed and re-inserted into the upper aperture and the lower aperture to reversibly detach and re-attach the upper base to the lower base as required by amended Claim 1.

Nowhere does the '535 patent disclose a dental appliance having a hinge connecting the upper base and the lower base wherein the hinge is sized to insert into slots in the upper base and the lower base wherein a front section of the upper base separates from a

front section of the lower base via the hinge wherein the hinge may be removed from the slots to allow the upper base to separate in its entirety from the lower base as required by amended Claim 8.

Nowhere does the '535 patent disclose a dental appliance having a concaved portion which is formed on the upper base wherein the concave portion is a depression in the upper base wherein the concave portion is shaped like the tongue and moves the tongue of the user outward with respect to the lower arch of the user wherein the upper base widens the upper arch of the user as required by amended Claim 21. Further, nowhere does the '535 patent disclose a dental appliance having a hinge attaching the upper base to the lower base wherein an upper hinge plate inserts into a first slot and a lower hinge plate inserts into a second slot wherein the first slot is in the upper base and the second slot is in the lower base and a pivot of the hinge connects the upper base to the lower base and resides outside of the exterior surfaces of the upper base and the lower base as required by amended Claim 21.

Nowhere does the '535 patent disclose a dental appliance having holes formed in the hinge wherein the upper base and the lower base have slots with projections within the slots wherein the hinge is attached to the upper base and the lower base via at least one projection of the upper slot passing through at least one hole in an upper hinge portion and at least one projection of the lower slot passing through at least one hole in a lower hinge portion as required by amended Claim 47.

Nowhere does the '535 patent disclose a dental appliance having a cavity formed within the upper base or the lower base wherein the cavity is a depression in the upper or lower base shaped and sized to receive a tongue of the user wherein the cavity moves the tongue outwardly with respect to the lower base as required by amended Claim 112. Additionally, nowhere does the '535 disclose a dental appliance having a hinge connecting the upper base and the lower base and removably attached to the upper base and the lower base so that removing the hinge from an upper slot in the upper base and a lower slot in the lower base allows the upper base to separate in its entirety from the lower base as required by amended Claim 112.

Under 35 U.S.C. §102(b), anticipation requires that a single reference discloses each and every element of Applicant's claimed invention. *Akzo N.V. v. U.S. International Trade Commission*, 808 F.2d 1471, 1479, 1 USPQ 2d. 1241, 1245 (Fed. Cir. 1986). Moreover, anticipation is not shown even if the differences between the claims and the reference are "insubstantial", and one skilled in the art could supply the missing elements. *Structure Rubber Products Co. v. Park Rubber Co.*, 749 F.2d. 707, 716, 223 USPQ 1264, 1270 (Fed. Cir. 1984).

Since the '535 patent fails to disclose a dental appliance as defined in Claims 1, 8, 21, 47 and 112, Applicant asserts that the rejection of Claims 1, 2, 8, 21-23, 27-29, 47, 49, 52-55 and 112-114 under 35 U.S.C. §102(b) has been overcome and should be withdrawn.

With respect to the rejection of Claims 1, 2, 4, 21, 24-26, 29

and 112-115 under 35 U.S.C. §102(b) as being anticipated by the '199 patent, Applicant submits that the rejection has been overcome in view of the foregoing amendments and the remarks that follow.

The '199 patent merely teaches an orthodontic appliance for assisting in properly positioning teeth within the mouth of an individual which has a labial-buccal flange, a lingual flange spaced from the labial-buccal flange, both of which define a generally U-shaped configuration in the occlusal view, and an isthmus interconnecting the two flanges. The appliance has no individual tooth sockets but instead utilizes pressure applied by the labial-buccal flange, the lingual flange, and relative angles and material thicknesses to properly position the teeth. The appliance is capable of fitting mouths and teeth of various sizes because it includes no individual tooth sockets. The hinge is integrally molded into the appliance.

Nowhere does the '199 patent disclose a dental appliance having a hinge that connects the top portion to the bottom portion wherein the hinge has an upper plate that inserts into a top aperture in the top portion wherein the hinge has a lower plate that inserts into a bottom aperture in the bottom portion wherein the hinge may be removed and re-inserted into the upper aperture and the lower aperture to reversibly detach and re-attach the upper base to the lower base as required by amended Claim 1.

Nowhere does the '199 patent disclose a dental appliance having a concaved portion which is formed on the upper base wherein the

concave portion is a depression in the upper base wherein the concave portion is shaped like the tongue and moves the tongue of the user outward with respect to the lower arch of the user wherein the upper base widens the upper arch of the user as required by amended Claim 21. Further, nowhere does the '199 patent disclose a dental appliance having a hinge attaching the upper base to the lower base wherein an upper hinge plate inserts into a first slot and a lower hinge plate inserts into a second slot wherein the first slot is in the upper base and the second slot is in the lower base and a pivot of the hinge connects the upper base to the lower base and resides outside of the exterior surfaces of the upper base and the lower base as required by amended Claim 21.

Nowhere does the '199 patent disclose a dental appliance having a cavity formed within the upper base or the lower base wherein the cavity is a depression in the upper or lower base shaped and sized to receive a tongue of the user wherein the cavity moves the tongue outwardly with respect to the lower base as required by amended Claim 112. Additionally, nowhere does the '199 disclose a dental appliance having a hinge connecting the upper base and the lower base and removably attached to the upper base and the lower base so that removing the hinge from an upper slot in the upper base and a lower slot in the lower base allows the upper base to separate in its entirety from the lower base as required by amended Claim 112.

Since the '199 patent fails to disclose a dental appliance as defined in independent Claims 1, 21, and 112, Applicant asserts that

the rejection of Claims 1, 2, 4, 21, 24-26, 29 and 112-115 under 35 U.S.C. §102(b) has been overcome and should be withdrawn.

With respect to the rejection of Claims 65-69, 71 and 74 under 35 U.S.C. §102(b) as being anticipated by *Bourke*, Applicant submits that the rejection has been overcome in view of the foregoing amendments and the remarks that follow.

Independent Claim 65, as amended, requires a dental appliance having wherein a socket has a rib formed on a wall of the socket wherein the rib projects from a projection point on the wall wherein an end portion of the rib farthest from the projection point contacts the teeth and rotates the teeth. Further, amended Claim 65 requires a dental appliance having a cavity that is a tongue-shaped depression in the base that moves the tongue of the user.

Bourke merely teaches a mouth worn apparatus having a main body having upper compartments and lower compartments which are generally U-shaped so as to conform generally to a patient's teeth, the upper compartment opening at least upwardly and the lower compartment opening at least downwardly so as to generally receive a patient's upper teeth and lower teeth. A plurality of flexible protrusion members extend from at least part of the interior surface of at least one of the compartments so as to contact at least some of the patient's teeth when the device is worn.

The tongue-contact portion of the appliance of *Bourke*, cited in the Office Action as disclosing the cavity of Claim 65, is actually a raised area, in contrast to being a cavity that is a

tongue-shaped depression in the base (*Bourke*, column 6, lines 18-23). Furthermore, the projections of *Bourke* merely promote blood flow, provide fit for the device or hinder growth of teeth and do not rotate the teeth, torque the teeth or close a space between the teeth.

Nowhere does *Bourke* disclose a dental appliance having a rib formed wherein the rib projects from a projection point on the wall of a socket wherein an end portion of the rib farthest from the projection point contacts teeth and rotates teeth as required by amended Claim 65. Further, nowhere does *Bourke* disclose a cavity in the base wherein the cavity is a tongue-shaped depression in the base that moves the tongue as required by amended Claim 65. Since *Bourke* fails to disclose a dental appliance as specifically defined in Claim 65, Applicant asserts that the rejection of Claims 65-69, 71 and 74 under 35 U.S.C. §102(b) has been overcome and should be withdrawn.

With respect to the rejection of Claim 3 under 35 U.S.C. §103(a) as being unpatentable over the '535 patent in view of the '944 patent, Applicant submits that the rejection has been overcome in view of the foregoing amendments and the remarks that follow.

The '944 patent merely teaches a method and an orthodontic positioner for preventing or correcting overbite and/or overjet at a mixed dentition stage for a patient having permanent incisors and lost, unreplaced canine and deciduous molar teeth. A positioner essentially of a size for a person having incisors the same size as

that of the patient but with a full set of permanent teeth is trimmed back posteriorly and along the gingival margins to fit in the patient's mouth without abrading the labial-buccal gum surfaces.

Neither the '535 patent nor the '944 patent, taken singly or in combination, teaches or suggests a dental appliance having a generally U-shaped base which has a top portion and a bottom portion connected via a hinge having an upper plate that inserts into a top aperture in the top portion and a lower plate that inserts into a bottom aperture in the bottom portion wherein the hinge may be removed and re-inserted into the upper aperture and the lower aperture to reversibly detach and re-attach the upper base to the lower base, as required by amended Claim 1, from which Claim 3 depends. Since the '944 patent fails to teach or to suggest the elements of the present invention which are not taught by the '535 patent, as required by amended independent Claim 1 from which Claim 3 depends, Applicant asserts that the rejection of Claim 3 under 35 U.S.C. §103(a) has been overcome and should be withdrawn.

With respect to the rejection of Claims 5 and 6 under 35 U.S.C. §103(a) as being unpatentable over the '535 patent in view of the '061 patent, Applicant submits that the rejection has been overcome in view of the foregoing amendments and the remarks that follow.

The '061 patent merely teaches an orthodontic appliance closely adapted to a patient's teeth for holding the same securely in place and a method for forming the same having a preformed trough formed between a labial-buccal flange and a lingual flange. Preform is

heated, and when soft, is placed within the patient's mouth and reshaped to precisely the contour of at least some if not all of the teeth of the row to which it is applied. The appliance is then cooled, preferably while still in the patient's mouth, after which the flanges are preferably trimmed back to the gum line. The appliance may have a wire across the front area of the appliance that engages the anterior teeth. The wire does not extend to the ends of the appliance.

Neither the '535 patent nor the '061 patent, taken singly or in combination, teaches or suggests a dental appliance having a generally U-shaped base which has a top portion and a bottom portion connected via a hinge that connects the top portion to the bottom portion wherein the hinge has an upper plate that inserts into a top aperture in the top portion wherein the hinge has a lower plate that inserts into a bottom aperture in the bottom portion wherein the hinge may be removed and re-inserted into the upper aperture and the lower aperture to reversibly detach and re-attach the upper base to the lower base, as required by amended Claim 1, from which Claims 5 and 6 depend from. Further, nowhere does the '535 patent or the '061 patent, taken singly or in combination, teach or suggest a hinge that prevents movement between the first portion and the second portion of the generally U-shaped base and the second base, as required by amended Claim 5. Further, nowhere does the '535 patent or the '061 patent, taken singly or in combination, teach or suggest a wire imbedded within the base wherein the wire extends

from the first end of the base to the second end of the base, as required by Claim 6.

Since the '535 patent and the '061 patent, taken singly or in combination, fail to teach or suggest a dental appliance as specifically defined in Claims 5 and 6, Applicant asserts that the rejection under 35 U.S.C. §103(a) has been overcome and should be withdrawn.

With respect to the rejection of Claim 7 under 35 U.S.C. §103(a) as being unpatentable over the '199 patent or the '535 patent in view of *Watson*, Applicant submits that the rejection has been overcome in view of the foregoing amendments and the remarks that follow.

Watson merely teaches a unitary plural-material, interocclusal dental appliance for use in connection with orthodontic/orthopedic treatment of the teeth and jaws of a patient's mouth. The appliance includes a first region made from a first material that provides a relatively hard expanse with first and second surfaces and with the second surface being contactable by one such set of teeth. The second surface may be constructed with a substantially planar shape, or with a shape conforming generally to the cusps of such one set of teeth. A second region is joined to the first region and is made from a second material that provides a relatively soft, persistently resilient enclosure.

Claim 7 requires a base which is constructed from a first material and a second material wherein the first material has a

lesser degree of rigidity than the second material. On the contrary, *Watson* teaches two materials in a dental appliance but does not teach or suggest an appliance with a hinge that connects the top portion to the bottom portion wherein the hinge has an upper plate that inserts into a top aperture in the top portion wherein the hinge has a lower plate that inserts into a bottom aperture in the bottom portion wherein the hinge may be removed and re-inserted into the upper aperture and the lower aperture to reversibly detach and re-attach the upper base to the lower base, as required by amended Claim 1, from which Claim 7 depends. Thus, *Watson* does not remedy the deficiencies of the '199 patent and the '535 patent in regards to the present invention. Since the '535 patent, the '061 patent and *Watson*, taken singly or in combination, fail to teach or suggest a dental appliance as specifically defined in Claim 7, Applicant asserts that the rejection under 35 U.S.C. §103(a) has been overcome and should be withdrawn.

With respect to the rejection of Claims 9-11, 50 and 51 under 35 U.S.C. §103(a) as being unpatentable over the '535 patent in view of the '199 patent, Applicant submits that the rejection has been overcome in view of the foregoing amendments and the remarks that follow.

Nowhere do the '535 patent or the '199 patent, taken singly or in combination, teach or suggest a dental appliance having a hinge connecting the upper base and the lower base wherein the hinge is sized to insert into slots in the upper base and the lower base

wherein a front section of the upper base separates from a front section of the lower base via the hinge wherein the hinge may reversibly be removed from the slots to allow the upper base to separate in its entirety from the lower base as required by Claim 8.

Nowhere do the '535 patent or the '199 patent, taken singly or in combination, teach or disclose a dental appliance having holes formed in the hinge wherein the upper base and the lower base have slots with projections within the slots wherein the hinge is attached to the upper base and the lower base via the projections of the upper base and the lower base passing through the holes of upper and lower portions of the hinge as required by amended Claim 47.

Since Claims 9-11 depend from Claim 8 and Claims 50 and 51 depend from Claim 47, Applicant asserts that the rejection of Claims 9-11, 50 and 51 under 35 U.S.C. §103(a) has been overcome and should be withdrawn.

With respect to the rejection of Claims 12 and 116 under 35 U.S.C. §103(a) as being unpatentable over the '535 patent in view of *Bourke*, Applicant submits that the rejection has been overcome in view of the foregoing amendments and the remarks that follow.

Neither the '535 patent nor *Bourke*, taken singly or in combination, teaches or suggests a dental appliance as required by Claims 12 and 116. The projections in *Bourke* are merely "flexible protrusion members" (*Bourke*, column 2, line 22). The protrusions

in *Bourke* do not guide the teeth and, instead, merely promote blood flow and fit the appliance on the teeth. To encourage tooth growth, the protrusions must be selectively provided and/or dimensioned (*Bourke*, column 4, lines 31-34). The protrusions are not capable of rotation of teeth, torque of teeth or closure of space between the teeth.

Nowhere do the '535 patent or *Bourke*, taken singly or in combination, teach or suggest ribs formed within a dental appliance wherein the ribs guide the teeth into a correct position as required by Claim 12. Nowhere do the '535 patent or *Bourke*, taken singly or in combination, teach or suggest ribs formed within the upper base or the lower base of an appliance, wherein the ribs guide the teeth into a correct position as required by Claim 116. Furthermore, amended independent Claims 8 and 112, from which Claims 12 and 166 depend from, respectively, both require a hinge mechanism not taught by the '535 patent or *Bourke*.

Since the '535 patent and *Bourke*, taken singly or in combination, fail to teach or suggest a dental appliance as specifically defined in Claims 12 and 116, Applicant asserts that the rejection under 35 U.S.C. §103(a) has been overcome and should be withdrawn.

With respect to the rejection of Claims 14, 16, 17, 19, 20, 56-62, 64, 75 and 77 under 35 U.S.C. §103(a) as being unpatentable over the '535 patent in view of *Kussick*, Applicant submits that the

rejection has been overcome in view of the foregoing amendments and the remarks that follow.

Independent Claim 14, as amended, requires a dental appliance having a concaved portion that is a depression formed in the upper base wherein the concaved portion is shaped like the tongue and moves the tongue to an elevated position with respect to the lower teeth of the user.

Independent Claim 56, as amended, requires a dental appliance having a lower base which has a lingual surface wherein a spike is formed on the lingual surface of the lower base wherein the spike contacts the tongue of the user. Amended independent Claim 56 also requires an appliance having a hinge having a first end which is inserted into a cavity within the upper base and a second end which is inserted into a cavity within the lower base wherein returning the hinge to the cavities re-attaches the upper base to the lower base.

Neither the '535 patent nor *Kussick*, taken singly or in combination, teaches or suggests a dental appliance as required by independent Claims 14 and 56. *Kussick* merely teaches a device having a teeth-fitting segment of a first occlusal trough, a second occlusal trough and a front portion. The device also has a downward projection for directing the user's tongue toward the anterior. Thus, *Kussick* does not teach a device that directs the user's tongue to an elevated position since a downward projection would be incapable of elevating the tongue.

Nowhere does the '535 patent or *Kussick*, taken singly or in combination, teach or suggest a dental appliance having a concaved portion that is a depression formed in the upper base wherein the concaved portion is shaped like the tongue and moves the tongue to an elevated position with respect to the lower teeth of the user as required by Claim 14.

Nowhere does the '535 patent or *Kussick*, taken singly or in combination, teach or suggest a dental appliance having a lower base which has a lingual surface wherein a spike is formed on the lingual surface of the lower base wherein the spike contacts the tongue of the user as required by Claim 56. Furthermore, nowhere does the '535 patent or *Kussick*, taken singly or in combination, teach or suggest a dental appliance with a hinge having a first end which is inserted into a cavity within the upper base and a second end which is inserted into a cavity within the lower base wherein returning the hinge to the cavities re-attaches the upper base to the lower base as required by amended Claim 56.

Since the '535 patent and *Kussick* fail to teach or suggest an dental appliance as specifically defined in independent Claims 14 and 56, Applicant asserts that the rejection of Claims 14, 16, 17, 19, 20, 56-62, 64, 75 and 77 under 35 U.S.C. §103(a) has been overcome and should be withdrawn.

With respect to the rejection of Claims 30, 33, 34, 39, 103-106 and 109 under 35 U.S.C. §103(a) as being unpatentable over the '199 patent in view of the '605 patent, Applicant submits that the

rejection has been overcome in view of the foregoing amendments and the remarks that follow.

Independent Claim 30, as amended, requires a dental appliance having a lower base which has a spike formed on a lingual surface wherein the tongue of the user is prevented from moving inward with respect to the lower base by the spike on the lingual surface of the lower base. Amended independent Claim 30 also requires a dental appliance having a hinge attaching the upper base to the lower base wherein the upper base has an exterior and an upper slot with an opening on the exterior of the upper base wherein the lower base has an exterior and a lower slot with an opening on the exterior of the lower base wherein an upper portion of the hinge inserts into the upper slot via the opening on the exterior of the upper base wherein a lower portion of the hinge inserts into the lower slot via the opening on the exterior of the lower base.

Independent Claim 103, as amended, requires a dental appliance having a rib formed wherein the projection or the rib extends inwardly with respect to the lower arch of the user wherein the projection or the rib blocks a space between the upper arch and the lower arch and corrects thumb sucking of the patient. Further, amended Claim 103 requires a dental appliance with a hinge having a first end reversibly inserted into a first upper cavity and a second end reversibly inserted into a second cavity wherein the first cavity is within the upper base and the second cavity is within the lower base.

Neither the '199 patent nor the '605 patent, taken singly or in combination, teaches or suggests a dental appliance as required by Claims 30 and 103. The '605 patent merely teaches a device that corrects open-bite with tooth receiving depressions. The device of the '605 patent also includes a projection for guiding the tongue, but the projection of the '605 patent is in the lower arch, not the upper arch (the '605 patent, column 2, line 63 to column 3, line 4).

Nowhere does the '199 patent or the '605 patent, taken singly or in combination, teach or suggest a dental appliance having a lower base which has a spike formed on a lingual surface wherein the tongue of the user is prevent from moving inward with respect to the lower base by the spike on the lingual surface of the lower base as required by amended Claim 30. Moreover, nowhere does the '199 patent or the '605 patent, taken singly or in combination, teach or suggest a dental appliance having a hinge attaching the upper base to the lower base wherein the upper base, the lower base and the hinge are designed manually wherein the upper base has an exterior and an upper slot with an opening on the exterior of the upper base wherein the lower base has an exterior and a lower slot with an opening on the exterior of the lower base wherein an upper portion of the hinge inserts into the upper slot via the opening on the exterior of the upper base wherein a lower portion of the hinge inserts into the lower slot via the opening on the exterior of the lower base, as required by amended Claim 30.

Nowhere does the '199 patent or the '605 patent, taken singly

or in combination, teach or suggest a dental appliance having the upper base which has a lingual surface extending outwardly with respect to the upper arch of the user wherein the lingual surface has a projection or a rib formed wherein the projection or the rib extends inwardly with respect to the lower arch of the user wherein the projection or the rib blocks a space between the upper arch and the lower arch and corrects thumb sucking of the patient as required by Claim 103. Moreover, nowhere does the '199 patent or the '605 patent, taken singly or in combination, teach or suggest a dental appliance having a hinge having a first end reversibly inserted into a first cavity and a second end which is reversibly inserted into a second cavity wherein the first cavity is within the upper base and the second cavity is within the lower base as required by amended Claim 103.

The '605 patent fails to teach or suggest the elements of the present invention which are not taught by the '199 patent, as required by amended independent Claims 30 and 103. Since the '199 patent and the '605 patent fail to teach or suggest a dental appliance as specifically defined in independent Claims 30 and 103, Applicant asserts that the rejection of Claims 30, 33, 34, 39, 103-106 and 109 under 35 U.S.C. §103(a) has been overcome and should be withdrawn.

With respect to the rejection of Claims 30, 37, 38, 103-105 and 109 under 35 U.S.C. §103(a) as being unpatentable over the '535 patent in view of the '605 patent, Applicant submits that the

rejection has been overcome in view of the foregoing amendment to independent Claim 30 and the remarks that follow.

Neither the '535 patent nor the '605 patent, taken singly or in combination, teaches or suggests a dental appliance as required by Claims 30 and 103. Nowhere does the '535 patent nor the '605 patent, taken singly or in combination, teach or suggest a dental appliance having a lower base which has a spike formed on a lingual surface wherein the tongue of the user is prevented from moving inward with respect to the lower base by the spike on the lingual surface of the lower base as required by amended Claim 30. Moreover, nowhere does the '535 patent or the '605 patent, taken singly or in combination, teach or suggest a dental appliance having the hinge mechanism required by amended Claim 30.

The '535 patent and the '605 patent, taken singly or in combination, do not teach or suggest a dental appliance having the upper base which has a lingual surface extending outwardly with respect to the upper arch of the user wherein the lingual surface has a projection or a rib formed wherein the projection or the rib extends inwardly with respect to the lower arch of the user wherein the projection or the rib blocks a space between the upper arch and the lower arch and corrects thumb sucking of the patient as required by amended Claim 103. Moreover, nowhere does the '535 patent or the '605 patent, taken singly or in combination, teach or suggest a dental appliance having the hinge mechanism required by amended Claim 103.

The '605 patent fails to teach or to suggest the elements of the present invention which are not taught by the '535 patent, as required by independent Claims 30 and 103. Since the '535 patent and the '605 patent fail to teach or suggest a dental appliance as specifically defined in Claims 30 and 103, Applicant asserts that the rejection of Claims 30, 37, 38, 103-105 and 109 under 35 U.S.C. §103(a) has been overcome and should be withdrawn.

With respect to the rejection of Claims 31, 32, 35 and 36 under 35 U.S.C. §103(a) as being unpatentable over the '535 patent in view of the '605 patent and further in view of *Bourke*, Applicant submits that the rejection has been overcome in view of the foregoing amendment to Claim 30, from which Claims 31, 32, 35 and 36 depend, and the remarks that follow.

The '535 patent, the '605 patent and *Bourke*, taken singly or in combination, do not teach or suggest a dental appliance as required by Claims 31, 32, 35 and 36. Nowhere do the '535 patent, the '605 patent or *Bourke*, taken singly or in combination, teach or suggest a dental appliance having a lower base which has a spike formed on a lingual surface wherein the tongue of the user is prevented from moving inward with respect to the lower base by the spike on the lingual surface of the lower base as required by amended independent Claim 30. Moreover, nowhere does the '199 patent, the '605 patent or *Bourke*, taken singly or in combination, teach or suggest a dental appliance having the hinge mechanism required by amended Claim 30. Accordingly, Applicant asserts that

the rejection of dependent Claims 31, 32, 35 and 36 under 35 U.S.C. §103(a) has been overcome and should be withdrawn.

With respect to the rejection of Claims 31, 32, 35 and 36 under 35 U.S.C. §103(a) as being unpatentable over the '199 patent in view of the '605 patent and further in view of *Bourke*, Applicant submits that the rejection has been overcome in view of the foregoing amendments and the remarks that follow.

The '199 patent, the '605 patent and *Bourke*, taken singly or in combination, do not teach or suggest a dental appliance as required by Claims 31, 32, 35 and 36. Nowhere do the '199 patent, the '605 patent or *Bourke*, taken singly or in combination, teach or suggest a dental appliance having a lower base which has a spike formed on a lingual surface wherein the tongue of the user is prevented from moving inward with respect to the lower base by the spike on the lingual surface of the lower base as required by amended independent Claim 30. Moreover, nowhere does the '199 patent, the '605 patent or *Bourke*, taken singly or in combination, teach or suggest a dental appliance having the hinge mechanism required by amended independent Claim 30. Accordingly, Applicant asserts that the rejection of dependent Claims 31, 32, 35 and 36 under 35 U.S.C. §103(a) has been overcome and should be withdrawn.

With respect to the rejection of Claim 63 under 35 U.S.C. §103(a) as being unpatentable over the '535 patent in view of *Kussick* and further in view of the '199 patent, Applicant submits that the rejection has been overcome in view of the foregoing

amendments and the remarks that follow.

The '535 patent, *Kussick* and the '199 patent, taken singly or in combination, do not teach or suggest a dental appliance as required by Claim 63, which depends from Claim 56. Nowhere do '535 patent, *Kussick* and the '199 patent, taken singly or in combination, teach or suggest a dental appliance having a lower base which has a lingual surface wherein a spike is formed on the lingual surface of the lower base wherein the spike contacts the tongue of the user as required by amended Claim 56. Moreover, nowhere does the '535 patent, *Kussick* or the '199 patent, taken singly or in combination, teach or suggest a dental appliance having the hinge mechanism required by amended Claim 56. Since Claim 63 depends from Claim 56, Applicant asserts that the rejection of Claim 63 under 35 U.S.C. §103(a) has been overcome and should be withdrawn.

With respect to the rejection of Claim 70 under 35 U.S.C. §103(a) as being unpatentable over *Bourke* in view of the '199 patent, Applicant submits that the rejection has been overcome in view of the foregoing amendments and the remarks that follow.

Neither *Bourke* nor the '199 patent, taken singly or in combination, teaches or suggests a dental appliance as required by Claim 65, from which Claim 70 depends from. Nowhere does *Bourke* or the '199 patent, taken singly or in combination, teach or suggest a dental appliance having a cavity in the base wherein the cavity is a tongue-shaped depression in the base that moves the tongue as required by amended Claim 65. Since Claim 70 depends from Claim 65,

Applicant asserts that the rejection of Claim 70 under 35 U.S.C. §103(a) has been overcome and should be withdrawn.

With respect to the rejection of Claim 72 under 35 U.S.C. §103(a) as being unpatentable over *Bourke* in view of *Kesling*, Applicant submits that the rejection has been overcome in view of the foregoing amendments and the remarks that follow.

Neither *Bourke* nor *Kesling*, taken singly or in combination, teaches or suggests a dental appliance as required by Claim 72. *Kesling* merely teaches an orthodontic appliance for use in the final stages of orthodontic treatment to ideally position and retain teeth, which comprises an arch-shaped body of resilient material having upper and lower archways for receiving the upper and lower arches of a patient. The appliance is premolded in several sizes, and the seating springs are custom fitted to the patient's arches in a short period of time by the orthodontist. The appliance has a wire which clasps teeth to hold the appliance in the mouth. The wire does not enlarge or constrict the arch, and also does not extend from the first end of the appliance all the way to the second end.

Nowhere does *Bourke* and *Kesling*, taken singly or in combination, teach or suggest a wire embedded within the base wherein the base has a first end and a second end further wherein the wire extends from the first end to the second end and alters an arch of the user, as required by amended Claim 72. Since *Bourke* and *Kesling*, taken singly or in combination, fail to teach or suggest

an dental appliance as specifically defined in Claim 72, Applicant asserts that the rejection under 35 U.S.C. §103(a) has been overcome and should be withdrawn.

With respect to the rejection of Claims 92-94, 97, 99, 101 and 102 under 35 U.S.C. §103(a) as being unpatentable over the '535 patent in view of *Kesling*, Applicant submits that the rejection has been overcome in view of the foregoing amendments and the remarks that follow.

Independent Claim 92, as amended, requires a dental appliance having a hinge which has a length defined between a first end and a second end wherein the hinge connects the upper base and the lower base wherein the first end of the removable hinge inserts into the upper base and further wherein the second end of the hinge inserts into the lower base wherein the hinge may be removed and re-inserted into the upper base and the lower base to reversibly detach and re-attach the upper base to the lower base.

Neither the '535 patent nor *Kesling*, taken singly or in combination, teaches or suggests a dental appliance having a hinge which has a length defined between a first end and a second end wherein the hinge connects the upper base and the lower base wherein the first end of the hinge inserts into the upper base and further wherein the second end of the hinge inserts into the lower base wherein the hinge may be removed and re-inserted into the upper base and the lower base to reversibly detach and re-attach the upper base to the lower base as required by amended Claim 92.

Since the '535 patent and *Kesling*, taken singly or in combination, fail to teach or suggest a dental appliance as specifically defined in amended independent Claim 92, Applicant asserts that the rejection of Claims 92-94, 97, 99, 101 and 102 under 35 U.S.C. §103(a) has been overcome and should be withdrawn.

With respect to the rejection of Claim 95 under 35 U.S.C. §103(a) as being unpatentable over the '535 patent in view of *Kesling* and further in view of the '199 patent, Applicant submits that the rejection has been overcome in view of the foregoing amendments and the remarks that follow.

The '535 patent, *Kesling* and the '199 patent, taken singly or in combination, do not teach or suggest a dental appliance as required by Claim 95. Nowhere do the '535 patent, *Kesling* and the '199 patent teach or suggest the hinge mechanism as required by amended Claim 92, from which Claim 95 depends. Accordingly, Applicant asserts that the rejection of Claim 95 under 35 U.S.C. §103(a) has been overcome and should be withdrawn.

With respect to the rejection of Claim 96 under 35 U.S.C. §103(a) as being unpatentable over the '535 patent in view of *Kesling* and further in view of *Bourke*, Applicant submits that the rejection has been overcome in view of the foregoing amendments and the remarks that follow.

The '535 patent, *Kesling* and *Bourke*, taken singly or in combination, do not teach or suggest a dental appliance as required

by Claim 96. Nowhere do the '535 patent, *Kesling* or *Bourke*, taken singly or in combination, teach or suggest the hinge mechanism required by amended independent Claim 92, from which Claim 96 depends. Accordingly, Applicant asserts that the rejection of Claim 96 under 35 U.S.C. §103(a) has been overcome and should be withdrawn.

With respect to the rejection of Claims 98 and 100 under 35 U.S.C. §103(a) as being unpatentable over the '535 patent in view of *Kesling* and further in view of the '272 patent, Applicant submits that the rejection has been overcome in view of the foregoing amendments and the remarks that follow.

Nowhere do the '535 patent, *Kesling* and the '272 patent, taken singly or in combination, teach or suggest the hinge mechanism required by amended independent Claim 92, from which Claims 98 and 100 depend. Accordingly, Applicant asserts that the rejection of Claims 98 and 100 under 35 U.S.C. §103(a) has been overcome and should be withdrawn.

With respect to the rejection of Claim 107 under 35 U.S.C. §103(a) as being unpatentable over the '535 patent in view of the '605 patent and further in view of the '061 patent, Applicant submits that the rejection has been overcome in view of the foregoing amendments and the remarks that follow.

The '535 patent, the '605 patent and the '061 patent, taken singly or in combination, do not teach or suggest a dental appliance as required by amended Claim 103, from which Claim 107 depends.

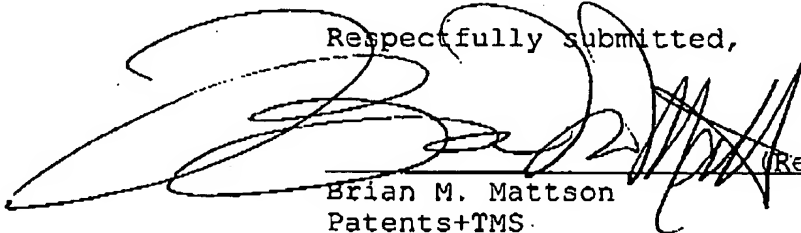
Nowhere do the '535 patent, the '605 patent and the '061 patent, taken singly or in combination, teach or suggest a dental appliance having the upper base which has a lingual surface extending outwardly with respect to the upper arch of the user wherein the lingual surface has a projection or a rib formed wherein the projection or the rib extends inwardly with respect to the lower arch of the user wherein the projection or the rib blocks a space between the upper arch and the lower arch corrects thumb sucking of the patient as required by amended Claim 103. Moreover, nowhere does the '535 patent, the '605 patent or the '061 patent, taken singly or in combination, teach or suggest a dental appliance having the hinge mechanism required by amended Claim 103. Since Claim 107 depends from Claim 103, Applicant asserts that the rejection of Claim 107 under 35 U.S.C. §103(a) has been overcome and should be withdrawn.

Claims 2-7 depend from independent Claim 1; Claims 9-13 depend from independent Claim 8; Claims 15-20 and 75-77 depend from independent Claim 14; Claims 22-29 depend from independent Claim 21; Claims 31-39 depend from independent Claim 30; Claims 48-55 depend from independent Claim 47; Claims 57-64 depend from independent Claim 56; Claims 66-74 depend from independent Claim 65; Claims 79-86, 110 and 111 depend from Claim 78; Claims 88-91 depend from independent Claim 87; Claims 93-102 depend from independent Claim 92; Claims 104-109 depend from independent Claim 103; and Claims 113-116 depend from independent Claim 112. These claims are further

believed allowable over the references of record for the same reasons set forth with respect to their parent claims since each sets forth additional novel features of Applicant's dental appliance.

In view of the foregoing remarks and amendments, Applicant respectfully submits that all of the claims in the application are in allowable form and that the application is in condition for allowance. Further, Applicant submits that neither further search nor consideration would be necessitated by entry of this Amendment. Therefore, entry of this Amendment is proper and should be effected. If, however, any outstanding issues remain, Applicant urges the Patent Office to telephone Applicant's attorney so that the same may be resolved and the application expedited to issue. Applicant requests the Patent Office to indicate all claims as allowable and to pass the application to issue.

Respectfully submitted,



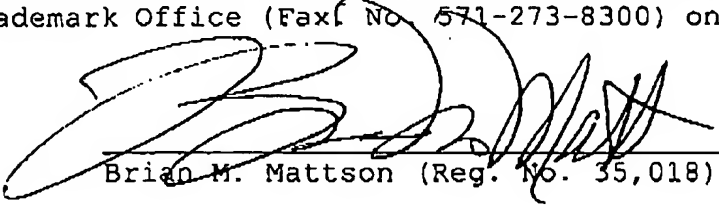
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CERTIFICATE OF TRANSMISSION

I hereby certify that this **Amendment After Final and Transmittal (in duplicate)** are being transmitted by facsimile to the U.S. Patent and Trademark Office (Fax: No. 571-273-8300) on January 16, 2007.



Brian M. Mattson (Reg. No. 35,018)